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**We claim:**

1. A process for the preparation of stable and reusable biosensing granules useful in the assessment of biodegradability of effluents, said process comprising developing active aerobic microbial consortia in synthetic medium, separating the active aerobic microbial consortia, immobilising the said microbial consortia using a natural polymer to form biosensing granules, dehydrating the immobilised biosensing granules at 24 - 32°C for a period of 4 – 12 hours, to obtain stable biosensing granules having a moisture content of 5 – 30 %.

2. A process as claimed in claim 1 comprising

   i. selecting a seed culture from raw sewage, wastewater treatment plants or activated sludge units;

   ii. preparing a synthetic growth media;

   iii. inoculating a microbial consortia in the said media;

   iv. incubating the microbial consortia under aerobic condition having an air flow of about 5 ml/minute, at about 28°C for a period of 12 – 24 hours or till the level of mixed liquor suspended solids (MLSS) reaches 14500 – 15500 mg/liter on a dry weight basis;

   v. separating the active aerobic microbial consortia by centrifugation at the appropriate rpm for 10 – 15 minutes and at a temperature of about 28°C;

   vi. immobilizing the said microbial consortia using aqueous natural polymer solution by known methods to obtain immobilized biosensing beads;

   vii. separating the said biosensing beads by decanting the said solution;

   viii. washing the beads with water thoroughly several times;

   ix. dehydrating the beads at a temperature in the range of 24 - 36°C for a period of 2 – 20 hours to obtain stable biosensing granules having a moisture content of 5 – 30 %;

   x. activating the stable biosensing granules by incubation in 2 – 5 % (w/v) aqueous solution at 28°C for 2 – 10 hours to get active stable biosensing granules;

   xi. separating the active granules from the activation solution by conventional methods.

3. A process as claimed in claim 1 wherein the aerobic microbial consortia is collected from raw sewage, wastewater treatment plants or from activated aerated sludge units.

4. A process as claimed in claim 1 wherein the synthetic growth media consists of (in grams/liter): glucose – 29 - 31; ammonium chloride – 5.5 – 7.5; potassium dihydrogen

orthophosphate – 1.5 – 3.5; dipotassium hydrogen orthophosphate – 0.5 - 1.5; sodium bicarbonate – 4.5 – 5.5; yeast extract – 0.5 – 1.5; urea – 0.3 – 0.7; and tryptone – 0.5 – 1.5.

5. A process as claimed in claim 1 wherein the pH of the prepared synthetic growth media is adjusted to about 7.0 using 0.1 N hydrochloric acid or 0.1 N sodium hydroxide.
6. A process as claimed in claim 1 wherein about 10 % (w/v) of the collected microbial consortia is inoculated in the synthetic growth medium.
7. A process as claimed in claim 1 wherein the inoculated synthetic growth medium is aerated by passing air at the rate of about 5 ml/minute.
8. A process as claimed in claim 1 wherein the growth media is incubated at a temperature of 24 - 32°C.
9. A process as claimed in claim 1 wherein the growth of the active aerobic microbial consortia is terminated after the mixed liquor suspended solids (MLSS) reaches 14500 – 15500 mg/liter.
10. A process as claimed in claim 1 wherein the active aerobic microbial consortia is separated from the broth using conventional methods selected from centrifugation, settling, decanting the supernatant.
11. A process as claimed in claim 10 wherein the separated active aerobic microbial consortia is immobilized using 1 – 3 % (w/v) sodium alginate and 0.2M calcium chloride solution.
12. A process as claimed in claim 1 wherein the active aerobic microbial consortia is used for immobilisation in the range of 3 – 5 % (w/v) to obtain immobilized biosensing granules.
13. A process as claimed in claim 1 wherein the prepared immobilized biosensing granules are incubated for 12 – 24 hours at 4°C in 0.2 M calcium chloride solution.
14. A process as claimed in claim 1 wherein the prepared immobilized biosensing granules are separated from the calcium chloride solution by decanting the aqueous liquid.
15. A process as claimed in claim 1 wherein the immobilized biosensing granules are dehydrated at 24 - 32°C for a period of 2 – 20 hours to obtain stable biosensing granules with 5 – 30% moisture content.
16. A process as claimed in claim 1 wherein the stable biosensing granules are incubated for 2 – 10 hours in 2 – 5 % (w/v) glucose solution, at 24 – 32°C to obtain active stable biosensing granules.
17. A process as claimed in claim 1 wherein the stable biosensing granules are separated from the activation media by draining out the solution.

18. A process as claimed in claim 1 wherein the residual dissolved oxygen content of the effluent is measured using oxygen probe before and 2 – 6 hours of addition of activation stable biosensing granules in the range of from 2 – 5% (w/v).

19. A method for the estimation of the biotreatability of an effluent using the biosensing granules of claim 1 wherein the effluent is characterized as highly biotreatable if the dissolved oxygen consumption rate by the activated biosensing granules is more than 2 mg/l, medium when the siad oxygen consumption rate is between 1.0 to 2.0 mg/l, and low when the oxygen consumption rate is less than 1.0 mg/l.

dependent limit passed. no method steps

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